NON-PUBLIC?: N
ACCESSION #: 8803110153
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Big Rock Point Plant PAGE: 1 of 3

DOCKET NUMBER: 05000155

TITLE: Manual Reactor Trip - Loss of Recirculation Flow
EVENT DATE: 02/05/88 LER #: 88-002-00 REPORT DATE: 03/07/88

OPERATING MODE: N POWER LEVEL: 010

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(i), 50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: R J Alexander, Technical Engineer TELEPHONE #: 616-547-6537

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: Big Rock Point Technical Specifications require that during power operation a minimum of one recirculation loop be in service (Technical Specification 4.1.2(a)) at a flow of 6E6 pounds per hour (Technical Specification 5.2.1).

On February 5, 1988 at 0816 hours, both (2) recirculation pumps tripped as designed, during a momentary loss of station power (three seconds). Per procedure, plant operators tripped the reactor manually in response to the loss of recirculation flow and all control rods withdrawn successfully inserted. No other engineered safety features were challenged by the event. Reactor power was approximately 10 percent at the time of the trip.

The momentary loss of station power occurred when the 138kV transmission tie breaker tripped during main generator synchronization. The breaker trip was caused when the plant operator attempted to close the main generator breaker slightly out of phase with the load.

Following check-out of all associated equipment (relays, breakers, transformer), no equipment problems were identified and restart commenced on February 7, 1988.

To prevent recurrence a training memo was developed to discuss the event, system operation, and proper method of synchronization with all plant operators.

(End of Abstract)

Description

On February 5, 1988, Big Rock Point Plant start-up was in progress following a scheduled maintenance outage. Power was approximately 10 percent and the turbine/generator (TG) was up to rated speed. At approximately 0814 hours the control room operator closed the generator output breaker (BKR) to synchronize the unit to the power grid. Immediately upon closure of the generator breaker, the 138kV transmission tie breaker (BKR) tripped open. This caused a momentary loss of station power for about three seconds, the time necessary for an automatic transfer to the second offsite power source (46kV). During the transient the reactor was stable with the Turbine Bypass Valve (JI) controlling steam flow/reactor pressure and the feedwater system (SJ) controlling primary system water level. However, the momentary loss of station power caused the recirculation pump motor (MO) undervoltage relays (27) to trip the feeder breakers causing a loss of forced recirculation flow. At approximately 0816 hours operators manually tripped the reactor per plant procedures. All control rods (AA) withdrawn successfully inserted and no other engineered safety features were challenged by the event.

The emergency diesel generator (DG) did start due to the momentary loss of power, but did not tie-in to the bus since the 46kV line transfer was successful. Following the event the plant was cooled to approximately 250 psig and maintained during system check-out. Testing verified that all systems and components associated with the generator, transformer, and breakers were operable and the plant was restarted on February 6, 1988 at 0211 hours. Successful synchronization occurred on February 7, 1988 at 0357 hours.

Cause

Big Rock Point Technical Specifications require that during power operation a minimum of one recirculation loop be in service (Technical Specification 4.1.2(a)) at a flow of 6E6 pounds per hour (Technical Specification 5.2.1).

When the momentary loss of station power caused the recirculation pumps to trip, as designed, operators manually tripped the Reactor per Technical Specifications and plant procedures. The purpose of having the recirculating pumps trip prior to transfer to the 46kV offsite source, is to remove the large load which could cause a high current surge during the transfer.

Investigation of the generator synchronization failure did not find any equipment malfunctions. Review of strip charts and discussions with

personnel did conclude that the synchronization was attempted slightly out of phase with the offsite source.

Corrective Actions

Following the event extensive testing of equipment was performed to insure no malfunctions occurred or damage was present. For the main transformer (XFMR) the following tests were satisfactory:

. transformer casing gas content
. windings were ratio tested
. doble test of transformer oil
. megger tested for faults

Breakers were checked for continuity and oil was doble tested. Both tests operated satisfactory. All associated relays were checked for proper operation and the 138kV line was returned to service on February 5, 1988 at 2305 hours.

Actions to Prevent Recurrence

1. An Operations Department training memo was written and reviewed by Operations Department personnel covering the event and the following topics:

. proper line-up of the generator output breaker switch prior to synchronization

. reclosure of the 138kV tie breaker to restore station power

. principle associated with generator synchronization and proper method completion of the transition.

2. Standard Operating Procedures will be updated to more clearly reflect the above practices.

3. The main generator and switchyard will be covered in the Operator Requalification training program during 1988.

Safety Assessment

There were no adverse safety consequences of the event since all systems functioned as designed in response to the event and the manual reactor trip was timely and successful.

INPO

This is not considered an automatic reactor trip while critical per INPO reporting criteria.

ATTACHMENT # 1 TO ANO # 8803110153 PAGE: 1 of 1

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DOCKET 50-155 - LICENSE DPR-6 - BIG ROCK POINT PLANT - LICENSEE EVENT REPORT 87-002 - MANUAL REACTOR TRIP - LOSS OF RECIRCULATION
FLOW

Licensee Event Report (LER) 87-002 (Manual Reactor Trip - Loss of Recirculation Flow) is attached. This event is reportable to the NRC per 10CFR50.73(a)(2)(i).

/s/ RALPH R FRISCH
Ralph R Frisch
Staff Licensing Analyst

CC Administrator, Region III, USNRC
NRC Resident Inspector - Big Rock Point

Attachment

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